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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/779,839	02/09/2001	Yoshikazu Nagamura	49657-947	6590

7590 05/20/2003

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Washington, DC 20005-3096

EXAMINER

KORNAKOV, MICHAIL

ART UNIT	PAPER NUMBER
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1746

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DATE MAILED: 05/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/779,839

Applicant(s)

NAGAMURA ET AL.

Examiner

Michael Kornakov

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 March 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 and 15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Applicants' amendment with clarifications, filed 03/06/2003, Paper No. 6, has overcome rejection under 35 USC 112, second paragraph and the said rejection is withdrawn.
2. Claims 1-7 and 15 are currently pending.
3. The text of those sections of Title 35 U.S. Code not included in this action can be found in a prior office action.

### ***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

**A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).**

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-3, 5-7 and 15 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5, 8, 10 and 11 of U.S. Patent No. 6,277,205. Although the conflicting claims are not identical, they are not patentably distinct from each other because both the instant claims and claims of US'205 disclose a method of cleaning/washing a photomask, comprising:

Art Unit: 1746

- a step of cleaning a surface of a photomask to decompose organic objects present thereon and to remove metallic impurities;
- a step of removing foreign objects attached to the surface of said photomask with cathodic water (which is referred by US'205 to water having hydrogen dissolved therein (col.7, lines 34-36); and
- a step of drying said photomask.

Claim 11 of US'205 introduces a limitation that cathodic water to be used in the step of removing foreign objects attached to the surface of said photomask (third processing step) contains ammonia.

Although the process claimed in US'205 includes an **additional** step of treating a surface of photomask with anodic water, compare to that instantly claimed, the transitional phrase "comprising" in the instant claim 1 is inclusive or open-ended and does not exclude additional, unrecited elements **or major method steps**. See, e.g., **Genentech, Inc. v. Chiron Corp.**, 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997). Consult also: In re Baxter, 656 F.2d 679, 686, 210 USPQ 795, 803 (CCPA 1981); Ex parte Davis, 80 USPQ 448, 450 (Bd. App. 1948).

6. Claims 1-7 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Nagamura et al. (U.S. 6, 277,205 B1), or rejected under 102 (a)/(e) as being anticipated by U.S. Patent 6,071,376 to Nagamura. Since both Patents have identical disclosure, only U.S.'205 will be discussed below.

Art Unit: 1746

Nagamura discloses a method of cleaning a photomask, such as a phase shift photomask comprising MoSiON film. The cleaning method of Nagamura comprises the following steps in recited order:

- a step of cleaning the surface of a photomask in order to **decompose organic objects present thereon and remove metallic impurities**, which is identical to step 1 of the instant claim 1;
- a step of removing **foreign objects** attached to the surface of said photomask with cathodic water, wherein the cathodic water having hydrogen dissolved therein also contains not more than 1% of ammonia;
- a step of drying said photomask;

(See abstract, Fig.7, col.3, lines 55-66; col.4, lines 1-4, 43-47; col.7, lines 36-36; col. 8, lines 4-5; col.15, lines 13-19; claims 10, 11).

With regard to claim 4 Nagamura teaches that the treatment with a weakly alkaline cleaning fluid obtained by adding to cathodic water a slight amount of an electrolyte such as KOH instead of ammonia can bring about a similar cleaning effect (col.11, lines 21-24).

With regard to claims 5 and 6 Nagamura teaches that in a method of cleaning a photomask at least **one of said steps** involves ultrasonic treatment as well (col. 4, lines 12-15).

With specific regard to claim 7 Nagamura teaches that the use of **cathodic water comprising a slight amount of ammonia incorporated therein** makes it

Art Unit: 1746

possible to provide a marked improvement in the percent removal of foreign **particulate** objects from the surface of a photomask (col. 9, lines 10-15). FIG. 6, for example, illustrates the percent removal of particulate alumina determined when MoSiON film having **particulate** alumina attached thereto.

Therefore all the limitations of the instant claims 1-7 and 15 are expressly met by Nagamura.

7. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yeol et al (U.S. 6,039,815).

Yeol discloses a cleaning method employed for **removing contaminants adhering to surfaces of substrates and the like** during processes for manufacturing liquid crystal display substrates or semiconductors (col.1, lines 5-10).

The method of Yeol comprises the steps of dissolving at least one of said ozone gas and **hydrogen gas into pure water** to produce at least one of ozone water and **hydrogen water**; mixing said ozone water with said acidic solution to form an **oxidizing acidic cleaning solution**; **mixing said hydrogen water with an alkaline solution to produce at least one alkaline cleaning solution**; and cleaning a subject to be cleaned with oxidizing acidic cleaning solution and subsequently performing the cleaning with hydrogen alkaline reducing cleaning solution (col. 2, lines 43-67, col. 3, lines 1-10, lines 40-50, claims 1, 3, 5). After cleaning is performed the cleaned substrate is dried (col. 9, lines 58-62). This reads on the three step cleaning process, as instantly claimed.

Art Unit: 1746

In Yeol, the cleaning efficacy can be improved by combining the above methods on either step with ultrasonic-waves (col.3, lines 45-50). The pH of hydrogen reducing alkaline solution can be adjusted by different alkaline solutions, such as  $\text{NH}_4\text{OH}$  and  $\text{KOH}$ . Yeol provides working examples, wherein the concentration of ammonia corresponds to the instantly claimed value (col.10, lines 41-42).

While teaching a cleaning method for removing contaminants from surfaces of substrates and the like during processes for manufacturing liquid crystal displays or semiconductors, Yeol does not indicate cleaning of photomasks and specifically halftone phase shift masks. However, because Yeol provides effective cleaning of surfaces of **different** substrates, utilized in semiconductor processing, and indicates that a plurality of types of contaminants can be removed from such surfaces (col.2, lines 43-49) by treating them with acidic oxidizing cleaning solutions, which can oxidize and remove organic substances and metallic contaminants and subsequently treating them with alkaline reducing cleaning solutions for the removal of particulate matter (col.11, lines 13-22), one skilled in the art motivated by the teaching of Yeol would have found it obvious to apply cleaning technique of Yeol while removing different types of contaminants from halftone phase shift masks, with the reasonable expectation of success.

### ***Response to Arguments***

8. Applicant's arguments filed on 03/06/2003 have been fully considered but they are not persuasive.

Art Unit: 1746

Applicants arguments reside in contention that the recited sequence of steps cannot be ignored. Applicants' attention is drawn to disclosures of Nagamura and/or Yeol, wherein the processing steps are provided in the same sequence as recited by Applicants, namely in both references the cleaning process starts with removal of organic objects and metallic impurities by treatment the surface with oxidizing media and further proceeds with treatment of the same surface, utilizing solution, which contains hydrogen gas and a slight amount of ammonia, followed by surface drying. With regard to "omission of a step", as argued by Applicants on page 3 of Remarks, it is noticed here that Applicants argument is not commensurate in scope with the instant claim 1, wherein the open-ended and inclusive transitional phrase "comprising" is provided. As clearly established by MPEP, the transitional phrase "comprising" does not exclude additional, unrecited elements **or method steps**. See, e.g., **Genentech, Inc. v. Chiron Corp.**, 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997). Consult also: In re Baxter, 656 F.2d 679, 686, 210 USPQ 795, 803 (CCPA 1981); Ex parte Davis, 80 USPQ 448, 450 (Bd. App. 1948).

Applicants also argue that Nagamura and Yeol do not teach photomask washing method, wherein said photomask is a phase-shift mask, including halftone mask, said H<sub>2</sub> gas dissolved water contains ammonia and the concentration of said ammonia is not more than 1%. With all due respect, Applicants attention is drawn to the teaching of Nagamura, wherein all the above limitations are recited and to the teaching of Yeol, which anticipates the instant claims for reasons as detailed above in the instant Office Action.



**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Kornakov whose telephone number is (703) 305-0400. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (703) 308-4333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872 9310 for regular communications and (703) 872 9311 for After Final communications.

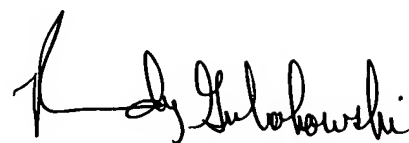
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 2450.

Application/Control Number: 09/779,839  
Art Unit: 1746

Page 9

Michael Kornakov  
Examiner  
Art Unit 1746

MK  
May 16, 2003

A handwritten signature in black ink, appearing to read "Randy Gulakowski". The signature is fluid and cursive, with a large initial "R" and a long, sweeping underline.

RANDY GULAKOWSKI  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700